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regression, both the experimental and generated intensity vectors are normalized by the sum of the squares of all the discrete polarization states at each wavelength.

If the global parameterization of calibration parameters is not used, then the vector "p_y" consists of the input Stokes Vector values "s_n", and the elements of the transfer matrix "A", all of which must be defined at each wavelength, This requires at least (4 + (4xn)) x w) calibration parameters, assuming that the ellipsometric parameters (N, C and S), for each calibration sample system are exactly known.

Further, if global parameterization is used, the input vector "s_n" for all wavelengths can be parameterized by the input polarizer azimuth "P", the ellipsometric parameters of the "m" calibration samples can be parametrically calculated as a function of angle of incidence (θ) and film thickness "t_m", and the transfer matrix "A" can be parameterized by the Azimuth of the analyzer "A", the orientation of each retarder "r_n", and the retardance of each retarder as a function of wavelength $\delta(\lambda)_n=\delta c_n/\lambda$. It is noted that higher order terms could also be added to the retardance vs. wavelength function, or to any other of the calibration parameters to improve fit between the experimentally measured and modeled generated data. Such a global parameterization significantly reduces the number of calibration parameters required to describe the ($DSP\text{-}SE_{tm}$) system over a spectroscopic range of wavelengths. The total number of calibration parameters in this suggested parameterization (other variations are certainly possible as well), may be as few as:

$$p_y = P + \phi_m + t_m + A + r_n + \delta c_m = 1 + m + m + 1 + n + n = (2 \times m) + (2 \times n) + 2.$$